Small Business Innovation Research/Small Business Tech Transfer

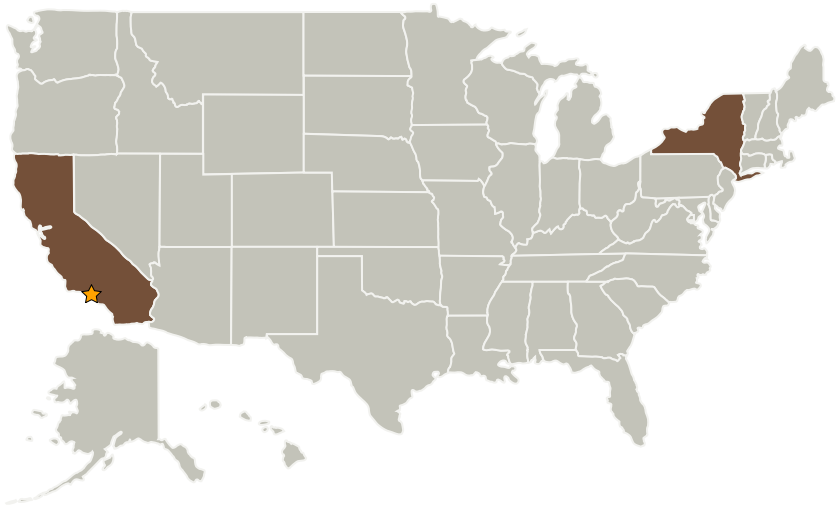
High Fidelity Multi-Mode Hyperspectral Multispectral Imager with Programmable Spectral Resolution, Phase II

Completed Technology Project (2009 - 2011)

Project Introduction

This SBIR Phase II proposal introduces a fast multi-mode hyperspectral-multispectral (MM-HS-MS) sensor with programmable spectral resolution. The sensor brings the following long-waiting benefits to the remote sensor community: (i) switchable between HS and MS operations, (ii) variable spectral resolution from 10nm to 560 nm; (iii) fast frame rate (54-1,750Hz), (iv) short full spectral range data acquisition time (10-1-10-2 sec), (v) increased sensitivity (particularly in measuring weak object or scene under lunar and man-made illumination), (vi) improved signal-to-noise ratio (SNR), and (vii) more flexible balance between the spectral image scanning speed and the data storage/processing flow rate. Other features include: lightweight/compact size, versatile operation on orbit, low orbit, and even on ground, and low cost. The Phase II objective is design, assemble, and test the MM-HS-MS sensor prototype; evaluate performance pros and cons versus the state-of-the-arts; verify sensor performance against the NASA mission program; reach TRL-6, and deliver the sensor to NASA.

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Jet Propulsion Laboratory (JPL)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Jet Propulsion Laboratory(JPL)	Lead Organization	NASA Center	Pasadena, California
Kent Optronics, Inc.	Supporting Organization	Industry	Hopewell Junction, New York

Primary U.S. Work Locations	
California	New York

Project Transitions

September 2009: Project Start

December 2011: Closed out

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX09 Entry, Descent, and Landing
  - TX09.4 Vehicle Systems
    - TX09.4.4 Atmosphere and Surface Characterization